STOMACH

High incidence of adenocarcinoma arising from the right side of the gastric cardia in NW Iran

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Background: In the West, the subsite incidence of gastric cancer has changed in recent decades, with cancer of the cardia increasing in incidence and that of the more distal stomach decreasing. NW Iran has a very high incidence of upper gastrointestinal cancer and we have examined the anatomical site specific incidence in this geographical region.

Method and materials: Of 33 718 patients who visited our clinic from March 2000 to Jan 2003, 3119 (9.3%) with persistent upper gastrointestinal symptoms underwent upper gastrointestinal fibreoptic endoscopy. Exact tumour site, subsite, and axial view were determined. Demographic data including age, sex, and place of residence were assessed. Using matched data from the cancer registry and endoscopic survey, age standardised rates (ASR) for all subsites were calculated.

Results: Upper gastrointestinal cancer was diagnosed histologically in 499 patients (16.0%). The most frequent site was the gastric cardia (126 (25.3%)) followed by the oesophageal body (90 (18.0%)), antrum (82 (16.4%)), corpus (74 (14.8%)), distal oesophagus (57 (11.4%)), gastro-oesophageal junction (47 (9.4%)), and proximal oesophagus (22 (4.4%)). From axial views of the cardia, 51.4% and 6.8% of tumours were found to originate from the lesser and greater curve, respectively. ASR for gastric cancer were 51.2 in males and 15.4 in females. Cardia cancer with ASR of 26.4 in males and 8.6 in females was the major component of gastric cancer.

Conclusion: NW Iran is a geographical region with a very high incidence of cardia cancer and with the great majority originating from the right side of the cardia. This suggests a locally acting luminal carcinogen. Studying the aetiology of this cancer in NW Iran is likely to increase our understanding of the rising incidence of this cancer throughout the Western world.

Gastric cancer remains the world's third most common malignancy.[1] However, in the West, there have been marked changes in the incidence of cancer at different anatomical subsites of the stomach. Adenocarcinoma of the most proximal cardia region of the stomach and adjacent gastro-oesophageal junction has increased in incidence over the past 25 years and at a rate which exceeds that of any other cancer.[2–4] In contrast, adenocarcinoma of the more distal stomach (non-cardia cancer) has been progressively falling in incidence for at least the last 50 years.[5] In Japan, the incidence of gastric cancer is particularly high, and 90% are located distal to the cardia.[6]

These opposing incidence trends indicate distinct aetiologies for these cancer of the two subsites of the stomach. Consistent with this, cancers at these subsites also differ with respect to the underlying gastric phenotype against which the cancer develops. Non-cardia gastric cancer occurs in patients with *Helicobacter pylori* induced atrophic gastritis and accompanying hypochlorhydria.[7 8] In contrast, cancer of the cardia and gastro-oesophageal junction occurs in subjects with normal acid secreting stomachs and is not associated with *H pylori* infection.[7 9 10]

The fall in incidence of non-cardia gastric cancer in the western world may be explained by the decrease in incidence of *H pylori* infection and associated atrophic gastritis and hypochlorhydria. However, the cause of the rising incidence of cancer of the cardia region of the stomach and gastro-oesophageal junction is unknown. Gastro-oesophageal reflux may be involved in the aetiology of adenocarcinoma within the oesophagus as there is an association between the two conditions.[11] However, there is little association between cardia cancer and reflux disease, and its aetiology remains unclear.[11]

Gastric cancer is the most common malignancy in Iran and its incidence is particularly high in the Ardabil province in the north west of the country.[12–16] In this province, the age standard incidence rate is 49.1 and 25.4 per 100 000 persons per year in males and females, respectively. The cause of the high incidence of gastric cancer in this geographical region is unknown. In view of the recent recognition that the different anatomical subsites of gastric cancer have different aetiologies, we have performed a detailed analysis of the distribution and subsite incidence of upper gastrointestinal cancer in this geographical region.

METHOD AND MATERIALS

Endoscopic survey

This prospective study was conducted in the first established subspecialty outpatient gastrointestinal clinic in Ardabil City. Of the 33 718 patients who attended this clinic with a chief complain of upper gastrointestinal symptoms over a 33 month period (March 2000–January 2003), 3119 patients (9.3%) who were older than 45 year age or were found to have at least one alarming gastrointestinal sign or symptom (dysphagia, persistent abdominal pain, weight loss, anaemia, abdominal mass, persistent vomiting) were enrolled. Using 10% lidocaine spray in the pharynx, standard upper gastrointestinal endoscopy was performed. According to WHO/IARC guidelines for classification of adenocarcinoma of the gastro-oesophageal junction area, the following definitions were used for exact localisation of tumours[17]:

Abbreviations: ASR, age standardised rate